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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/759,135

01/20/2004

Takefumi Yoshikawa

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6967

7590

10/18/2004

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EXAMINER

NGUYEN, MINH T

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/759,135

Applicant(s)

YOSHIKAWA, TAKEFUMI

Examiner

Minh Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,5,12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/227,758.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/2/04, 9/1/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment filed on 9/29/04 has been received and entered in the case. Claims 3, 5, 12 and 14 are pending. The amendment and argument presented therein overcome the informality objections noted in the previous Office action, and therefore, are withdrawn. The prior art rejections are remained for the reasons set forth below. This action is FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 3 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,218,892, issued to Soumyanath et al.

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As per claim 3, Soumyanath discloses a driver circuit (Fig. 1), comprising:

a constant current section (M3, column 3, line 32, i.e., “the gate may be tied high” or in other words, when the gate is tied HIGH, M3 functions as a constant current source) for outputting a prescribed current (the current flows through the drain of M3);

a first pad (at the drain of M1) connected to a first resistor (L1, column 3, line 26) and a first voltage (VCC);

a second pad (at the drain of M2) and a second resistor (L2) connected as recited;

a first switching element (M1) responses to a first signal (VIN+), connected as recited;

a second switching element (M2) responses to a second signal (VIN-) which is the complement of the first signal, connected as recited;

a control section (control circuitry 30) for controlling the potential at the output node (the potential at the drain of M3) of the constant current section (the body bias control circuitry 30 controls the substrates of M1 and M2, as a result, the potential at the output node is controlled),

because the body bias control circuitry 30 controls the substrates of M1 and M2, the on resistance values of the first and second switching elements are controlled, i.e., the resistance values are varied according to the bias voltage Vbb, or in other words, according to the potential at the output node of the constant current section. The recited limitation “so that the timing at which the first switching element is turned ON/OFF and the timing at which the second switching element is turned ON/OFF are the same” is a functional limitation and merely requires the ability of a driver to be capable of performing the recited function. Because it is clear that the voltage potential Vbb of the

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control circuitry 30 in the Soumyanath's driver circuit can be set to any voltage which includes a voltage satisfying the recited limitation which is for "the timing at which the first switching element is turned ON/OFF and the timing at which the second switching element is turned ON/OFF are the same", the recited limitation is met.

the recited first and second switching elements read on transistors M1 and M2, respectively, and they are connected and functioned as recited.

The limitation recited on the last two lines is met as described in column 4, lines 23-24, i.e., the bias voltage (VBB) decreases or increases with respect to the voltage source VCC. Also the potential at the output node of the constant current source decreases or increases with respect to VCC since M3 is powered by VCC. In other words, when the voltage source VCC is changed, the potential at the output node of the constant current section is changed, and the control section varies the substrate potential VBB according to the potential at the output node of the constant current section.

As per claim 12, this claim is rejected for the same reasons noted in claim 3.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,218,892, issued to Soumyanath et al.

As per claim 5, Soumyanath discloses a driver circuit having the structure discussed in claim 3 herein above but he does not explicitly disclose the value of the prescribed potential at the output node is close to the intermediate value of the minimum and maximum values of the gate potential of the first or second transistor minus the threshold potential of that transistor as called for in the claim.

However, as ruled by the court, when general condition is met, it is not inventive to vary parameters to obtain an optimal condition. In this instant case, Soumyanath teaches the structure which is the same as the claimed circuit as discussed in claim 1 (the general condition is met), varying the value of the prescribed potential to be close to the intermediate value of the minimum and maximum values of the gate potential of the first or second transistor minus the threshold potential of that transistor is seen as a routine experiment and can be easily done by a person having average skill in the art.

It would have been obvious for one skilled in the art at the time of the invention was made to set the value of the prescribed potential in the Soumyanath's driver circuit to be close to the intermediate value of the minimum and maximum values of the gate potential of the first or second transistor minus the threshold potential of that transistor.

The motivation and/or suggestion for doing so would be to maximize the peak to peak voltage of the first signal can be applied to the driver circuit without clipping.

As per claim 14, this claim is rejected for the same reason and motivation discussed in claim 5.

Response to Arguments

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4. Applicant's argument filed 9/29/04 has been fully considered but it is not persuasive.

The applicant argues that Soumyanath reference fails to teach or suggest the limitation that the control section varies the resistance value “so that the timing at which the first switching element is turned ON/OFF and the timing at which the second switching element is turned ON/OFF are the same”.

As discussed in the preceding rejection, the recited limitation is a functional limitation and merely requires the ability of a driver to be capable of performing the recited function. Because it is clear that the voltage potential V_{bb} of the control circuitry 30 in the Soumyanath's driver circuit can be set to any voltage which includes a voltage satisfying the recited limitation which is for “the timing at which the first switching element is turned ON/OFF and the timing at which the second switching element is turned ON/OFF are the same”, the recited limitation is met. See *In re Danly*, 263 F. 2d 844, 847, 120 USDQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device is, not what a device does”. Also see MPEP 2114 for further discussion.

In this instant case, the claimed driver has the same structure as the Soumyanath reference, the manner to operate, i.e., by setting the V_{bb} voltage to a certain value to obtain the recited function, does not differentiate the claim from the prior art.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is **571-272-1748**. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 10/15/04

Minh Nguyen
Primary Examiner
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